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(54) Point-of-Sale Payment Using Interactive Television

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Notice: This application is as filed and may therefore contain an incomplete specification.



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Abstract

A method for providing point-of-sale (POS) payment using interactive television (ITV) by directly debiting a customer's bank account through electronic transfer of funds or by billing a customer's credit card account. The customer places an order for products or services on his ITV and can make POS payment either by authorizing direct debit from his bank account or by authorizing a charge to his credit card account. The customer's debit and credit account information is collected and stored by the ITV server so that there is no need to swipe the customer's debit or credit card through a magnetic stripe reader at the moment of sale.

POINT-OF-SALE PAYMENT USING INTERACTIVE TELEVISIONTechnical Field

This invention relates to a method and apparatus for providing point-of-sale (POS) payment using interactive television (ITV) to directly debit a customer's bank account through electronic transfer of funds or to bill a customer's credit card account without having to swipe the customer's debit or credit card through a magnetic stripe reader at the moment of sale.

Background of the Invention

Currently, there exist methods for providing POS payment for products and services by debiting a customer's bank account through electronic transfer of funds or by billing a customer's credit card. For example, some supermarkets have key pads very similar to those found in bank automatic teller machine (ATM) applications. A shopper in such a supermarket can elect to pay for his groceries by directly debiting his bank account. If the shopper so chooses, the shopper gives his ATM card to the supermarket cashier who swipes the card through a magnetic stripe reader on the key pad. The magnetic stripe reader reads the customer's bank account information contained on the magnetic stripe on the shopper's ATM card. The cashier then returns the shopper's ATM card to the shopper and hands the key pad to the customer who enters his personal identification number (PIN). The customer's bank account information and PIN is transmitted electronically through the ATM network to the customer's bank which either approves the debit and debits the customer's account or denies the debit. The approval or denial is electronically transmitted through the ATM network back to the supermarket.

Similarly, many merchants accept credit cards as a method of payment for products and services. A customer who elects to pay for products and services on a credit card gives his credit card to a cashier. The cashier swipes the credit card

through a magnetic stripe reader on a device provided by the credit card issuer dedicated for the approval of credit card transactions. The magnetic stripe reader reads the customer's credit card information contained on a magnetic stripe on the customer's credit card. The cashier then returns the customer's credit card to the customer. The customer's credit card information is transmitted electronically to the customer's credit card issuer. The credit card issuer either approves or denies the credit and the approval or denial is electronically transmitted back to the merchant.

Those existing methods and apparatus for POS payments have some distinct disadvantages. For example, to meet present banking industry standards, the customer must be physically present at the merchant's location, the merchant must have dedicated hardware at his location to initiate the credit or debit transaction and must physically swipe the customer's credit or debit card through a magnetic stripe reader and the merchant must make sure that approval of the debit or credit is received before fulfilling the order.

Summary of the Invention

The above problems are solved in accordance with the principles of this invention by providing a method that allows a customer to make a POS payment for products or services using ITV without having to swipe the customer's debit or credit card through a magnetic stripe reader at the moment of sale. After placing an order for products or services offered on ITV, the customer can make a POS payment either by authorizing direct debit from his debit card account or bank account or by authorizing a charge to his credit card account. The customer's account information is collected by the ITV server when the customer is connected to ITV server's network and is available to the ITV server.

The method and apparatus of the invention, while particularly adapted to ITV, can be used in a variety of similar broadband networks to provide point-of-sale payment for products and services without having to swipe the

customer's debit or credit card through a magnetic stripe reader at the moment of sale.

5 In the direct debit scenario, the customer's account information is transmitted from the ITV server to the ATM network. The customer's bank makes payment to the merchant who fulfills the customer's order for the products or services. The payment is made immediately by electronic transfer of funds through the ATM network.

10 In the credit card scenario, the customer's account information is transmitted from the ITV server to the credit card issuer. The credit card issuer makes payment to the merchant and the customer is billed on his credit card during the next billing period.

15 Thus, the customer need not have dedicated hardware at his home and need not be present at the merchant's location but can effectuate payment from his home using ITV. The merchant need not swipe the customer's debit or credit card through a magnetic stripe reader because the customer's account information is already available to the ITV server. Finally, the merchant need not verify approval of the debit or credit, that is done automatically through the ATM network or credit card network.

Brief Description of the Drawings

5 FIG. 1 is a block diagram of an exemplary embodiment of the invention.

FIG. 2 is a flow diagram illustrating the method for providing point-of-sale payment in accordance with the invention.

0 FIG. 3 is a flow diagram illustrating one aspect of the method for providing point-of-sale payment in accordance with the invention.

Detailed Description

Referring to FIG. 1, the customer (10) at a customer ITV station (12) is engaged in an ITV home-shopping application.

In the ITV home-shopping application, the customer can browse through products and services offered by vendors that sell their products and services on the network of an ITV server (14).

5 Assuming that the ITV customer (10) chooses to order a product or service being offered on the ITV server's (14) network, he would request order information via ITV. That order information would include an order form screen containing information the customer must complete to place an
10 order. It is contemplated that each vendor will have its own order forms for particular products and services it offers because the information required to fulfill the order may differ depending on the type of product or service being ordered. For example, the order information required for food
15 products will differ from the order information required for clothes.

 The customer (10) can order the product service by entering order data (16) on to the order form using a virtual keyboard on the ITV or an ITV remote control key pad device
20 similar to currently available television remote control devices. Either as a part of the order form or as part of a separate screen, the customer will be asked to choose a method of payment from a variety of payment options. The payment options will include, for example, a list of the customer's
25 debit card and credit card accounts. The customer can select to debit any of his bank accounts or to bill any of his credit cards for the products or services he is ordering.

 The customer's bank account, debit card and credit card information, including account numbers, is collected by the
30 ITV server (14) when the customer's ITV station (12) is connected to the ITV server's (14) network. The customer's PIN may also be collected by the ITV server. That information is stored by the ITV server in a customer account information database.

35 The ITV server (14) can have one of its technicians collect the customer account information during installation and connection of the customer's ITV station (12). For

example, using a hand-held magnetic stripe reader and a standard telephone line, the ITV server's technician/installer can call the ITV server and transmit the customer's credit and/or debit card account information to the ITV server by swiping the customer's credit and/or debit cards in the hand-held magnetic stripe reader. If the customer's PIN is to be provided to the ITV server, the ITV server's technician/installer can instruct the customer to enter his PIN on the telephone key pad.

For security reasons, the customer's bank account information is not displayed on the screen from which the customer selects payment options. The payment option screen merely contains descriptions from which the customer can identify which of his accounts is being debited or charged (e.g. First National Bank, Visa® card etc.). All members of a household sharing an ITV can have their respective accounts displayed on the ITV payment option screen.

Using either an ITV virtual keyboard or an ITV remote control key pad, the ITV customer (10) can select the method of payment from the ITV payment option screen. If the customer's PIN has not been collected and stored by the ITV server, the customer may be asked to enter his PIN. Once the ITV customer (10) selects a payment option, an electronic signal (18) is sent from the customer's ITV station (12) to the ITV server (14). That electronic signal contains an identification of the merchant whose products or services the customer has ordered, the cost of the order, the customer's chosen method of payment and a customer identification.

The customer identification is in the form of an electronic "address" assigned to the customer's ITV station (12). When the customer ITV station (12) is connected to the ITV server (14), the customer ITV station (12) is identified by an electronic address. That address can be encrypted into an ITV set top box which serves as an interface between the customer's ITV station (12) and the cable connected to the ITV server (14). That electronic address serves to identify the customer's ITV station (12) to the ITV server (14).

The identification of the customer's ITV station (12) to the ITV server (14) enables the ITV server (14) to identify the particular account information of the ITV customer (10). The ITV server's (14) identification of the customer's account
5 information along with the customer's selection of a payment option enables the ITV server (14) to begin the process whereby the customer's account is debited or charged for the products or services ordered.

In the direct debit scenario, the customer's bank account or debit card information is electronically transmitted (21)
10 to a network gateway bank (20). The network gateway bank (20) serves as an entry point to the ATM network (22). The customer's bank account or debit card information is electronically transmitted (23) from the network gateway bank
15 (20) to the ATM network (22).

The ATM network (22) electronically transmits (25) the customer's bank account or debit card information to the proper customer bank (24). The current ATM network is provided with the necessary software to perform this function.

At the customer's bank (24), the ITV customer's (10) account is identified and the customer's bank (24) determines whether the ITV customer (10) has sufficient funds in his bank account to pay the merchant (26) for the products or services ordered by the ITV customer (10). If sufficient funds are
20 available, the customer's bank (24) dedicates and freezes the funds necessary to complete the same and authorization code signals (28, 30, 32) are electronically transmitted from the customer's bank (24) to the ATM network (22), to the network gateway bank (20) and to the ITV server (14). If sufficient
25 funds are not available, a denial signal is similarly electronically transmitted back through the ATM network (22), to the network gateway bank (20) and to the ITV server (14).
30

The ATM network (22) electronically debits (41) the customer's account and electronically transfers a credit
35 (42, 43) to the merchant (26) or the merchant's bank account (not shown). Alternatively, the ATM network (22) can electronically debit the customer's account (41) and credit

(42, 36) the ITV server's bank account at the ITV server bank (38) and then electronically debit (40) the ITV server's bank account and credit (43) the merchant (26). The credit received by the merchant will equal the cost of the products or services ordered by the customer less any transaction fees typical of those charged in the banking industry.

5 A notice of authorization or denial (34) of the order is sent from the ITV server (14) to the customer ITV station (12). Along with a notification of denial, the customer has the option of returning to the payment option screen and selecting an alternative payment method.

10 Upon receiving the authorization (32), the ITV server (14) electronically transmits a signal (46) to the merchant (26) to fulfill the customer's (10) order. The merchant (26) then fulfills the order.

15 The credit card scenario is very similar to the above described direct debit scenario. The principal difference is that either an ITV server or a network gateway bank serves as the entry point to the credit card network. The customer's credit card information is transmitted from the ITV server or network gateway bank to the credit card issuer and the credit card issuer either authorizes or denies the transaction. If authorized, the credit card issuer pays the merchant and bills the customer for the products or services ordered at the end of the billing period.

20 The method can also be used for automated banking and billing payment. Using ITV, the customer can transfer funds between his bank accounts; authorize scheduled debiting of his bank account, for example to pay his house mortgage; or authorize debiting of his bank account to pay aggregated transactions, for example to pay his telephone bill.

25 Figure 2 is a flow diagram illustrating the method for providing point-of-sale payment in accordance with the invention. The customer (10) engaged in an ITV home-shopping application (100) requests order information (step 102). In response to the customer's request (step 102), the ITV server (14) transmits order information, including an order form, to

the customer ITV (12) (step 104). As a part of the order information appearing on the customer ITV, the customer (10) is asked to select a payment option (step 106).

5 The customer (10) can select direct debiting of his bank account as the method of payment (step 108). The customer ITV (12) signals the ITV server (14) with an identification of the merchant (26) whose products or services the customer (10) would like to order, the cost of the order, the customer's choice of direct debit of his bank account as the method of payment (step 108) and an identification of the customer (10) 10 (step 110). In response to the customer's choice of debit of his bank account as the method of payment and the customer identification, the ITV server (14) identifies customer bank account information maintained in storage (step 112).

15 The customer bank account information is transmitted by the ITV server (14) to the network gateway bank (20) by the network gateway bank (20) to the ATM network (22) and by the ATM network to the customer bank (24) (step 114). The customer bank (24) determines whether the customer (10) has 20 sufficient funds in his bank account to proceed with the transaction (step 116).

 If sufficient funds are available, an authorization code is transmitted from the customer's bank (24) to the ATM network (22), from the ATM network (22) to the network gateway bank (20) and from the network gateway bank (20) to the ITV 25 server (14) (step 118). The ATM network (22) debits the customer bank account at the customer bank (24) and credits the merchant (26) (step 120). The ITV server (14) transmits an authorization to the customer ITV (12) and the 30 authorization appears on the customer ITV (112) (step 122) and the ITV server (14) instructs the merchant (26) to fulfill the customer's order (step 124). Thereafter, the customer can continue in the ITV home shopping application (step 126).

 In lieu of selection of direct debiting of a bank 35 account, the customer can select billing of his credit card as the method of payment (step 138) in response to the query to select a payment option (step 106). The customer ITV (12)

signals the ITV server (14) with the identification of the merchant (26), cost of the order, choice of a credit card as the method of payment and identification of the customer (10) (step 140). The ITV server (14) identifies customer account
5 information maintained in storage (step 142).

The customer credit card information is transmitted by the ITV server (14) to the network gateway bank and by the network gateway bank to the credit card issuer (step 144). If the credit card issuer approves the transaction, the credit
10 card issuer bills the customer's credit card account and pays the merchant (steps 146, 148). The ITV server (14) transmits an authorization to the customer ITV (12) and the authorization appears on the customer ITV (12) (step 122) and the ITV server (14) instructs the merchant (26) to fulfill the
15 order (step 124). Thereafter, the customer can continue in the ITV home-shopping application (step 126).

If the customer bank (24) determines that sufficient funds are not available in the customer bank account (step 116), a denial signal is transmitted from the customer
20 bank (24) to the ATM network (22), from the ATM network (22) to the network gateway bank (20) and from the network gateway bank (20), to the ITV server (14) (step 128). Similarly, if the credit card issuer does not authorize the transaction (step 146), a denial signal is transmitted from the credit
25 card issuer to the network gateway bank (20) and from the network gateway bank (20) to the ITV server (14) (step 129). In response to a denial signal, the ITV server transmits the denial to the customer and a denial notification appears on the customer's ITV (step 120). The ITV server queries the
30 customer regarding selection of a new payment method (step 132). If the customer chooses to select a new payment method, the ITV server transmits the order information including a payment option screen to the customer ITV (12) (step 134). If the customer does not want to select an
35 alternative payment option, the customer can continue in the ITV home-shopping application (step 136).

Figure 3 is a flow diagram illustrating one aspect of the method for providing point-of-sale payment in accordance with the invention, and specifically, one method of collection and storage of customer account information.

5 During the ITV server's installation and connection of the ITV service to the customer ITV (12), a call is placed to the ITV server (14) (step 150). A hand-held magnetic stripe reader is connected to the telephone line (step 152) and customer debit and/or credit cards are swiped through the
10 hand-held magnetic card reader (step 154) so that the information contained on the magnetic stripes of the customer's debit and credit cards is transmitted over the telephone line to the ITV server (14) (step 156). If the customer PIN is to be collected (step 158), the customer
15 enters his PIN on the telephone key pad (step 160) so that the customer's PIN is transmitted over the telephone lines to the ITV server (14) (step 162). The ITV server receives, collects and stores the customer debit and/or credit card account information for future use in providing point-of-sale payment
20 (step 164).

 It is to be understood that the above description is only of preferred embodiments of the invention. Numerous other arrangements may be devised by one skilled in the art without departing from the scope of the invention. The invention is
25 thus limited only as defined in the accompanying claims.

Claims:

1. A method for providing point-of-sale (POS) payment, comprising the steps of:
 - collecting and storing customer account information;
 - receiving customer information, customer payment option information and customer order information;
 - identifying the previously collected and stored customer account information corresponding to the customer information and the customer payment option information;
 - identifying a merchant account corresponding to the customer order information;
 - transmitting the customer account information and the merchant account information to permit manipulation of the account balances.
2. The method for providing POS payment of claim 1, wherein the customer account information collected and stored includes customer bank account information.
3. The method for providing POS payment of claim 1, wherein the customer account information collected and stored includes customer credit card account information.
4. The method for providing POS payment of claim 2, wherein the customer bank account information collected and stored includes a customer personal identification number (PIN).
5. The method for providing POS payment of claim 1, wherein the customer order information includes an ordered product or service and a cost for that product or service.
6. The method for providing POS payment of claim 1, wherein the customer payment option information includes identification of a customer bank account.

7. The method for providing POS payment of claim 1, wherein the customer payment option information includes identification of a customer debit card account.
8. The method for providing POS payment of claim 1, wherein the customer payment option information includes identification of a customer credit card.
9. The method for providing POS payment of claim 5, wherein a customer bank account is debited by an amount equal to the cost of the product or service ordered.
10. The method for providing POS payment of claim 5, wherein a customer credit card account is charged an amount equal to the cost of the product or service ordered.
11. The method for providing POS payment of claim 5, further comprising crediting the merchant account by an amount equal to the cost of the product or service ordered less transactional fees.
12. The method for providing POS payment of claim 1, wherein the transmission of customer account information and merchant account information to permit manipulation of the account balances includes transmission through the ATM network.
13. The method for providing POS payment of claim 1, wherein the transmission of customer account information and merchant account information to permit manipulation of the account balances includes transmission through a credit and issuer network.
14. A method for providing point-of-sale (POS) payment, comprising the steps of:
 - transmitting customer account information to a server;

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transmitting customer information and customer payment option information to a server to facilitate identification of the previously transmitted customer account information and manipulation of the account balance;

transmitting customer order information to a server to facilitate identification of a merchant account and manipulation of the account balance.

15. The method for providing POS payment of claim 14, wherein the customer account information transmitted includes customer bank account information.

16. The method for providing POS payment of claim 14, wherein the customer account information transmitted includes customer credit card account information.

17. The method for providing POS payment of claim 15, wherein the customer bank account information transmitted includes a customer personal identification number (PIN).

18. The method for providing POS payment of claim 14, wherein the customer order information transmitted includes an ordered product or service and a cost for that product or service.

19. The method for providing POS payment of claim 14, wherein the customer payment option information transmitted includes an identification of a customer bank account.

20. The method for providing POS payment of claim 14, wherein the customer payment option information transmitted includes identification of a customer debit card.

21. The method for providing POS payment of claim 14, wherein the customer payment option information transmitted includes an identification of a customer credit card.

22. An apparatus for providing point-of-sale (POS) payment, comprising:

a means for collecting and storing customer account information;

a means for receiving customer information, customer payment option information and customer order information;

a means for identifying the previously collected and stored customer account information corresponding to the customer information and the customer payment option information;

a means for identifying a merchant account corresponding to the customer order information;

a means for transmitting the customer account information and the merchant account information to permit manipulation of the account balances.

23. The apparatus for providing POS payment of claim 22, wherein the means for collecting and storing customer account information includes a means for collecting and storing customer bank account information.

24. The apparatus for providing POS payment of claim 22, wherein the means for collecting and storing customer account information includes a means for collecting and storing customer credit card account information.

25. The apparatus for providing POS payment of claim 23, wherein the means for collecting and storing customer bank account information includes a means for collecting and storing a customer personal identification number (PIN).

26. The apparatus for providing POS payment of claim 22, wherein the means for receiving customer order information includes a means for receiving identification of an ordered product or service and a cost for that product or service.

27. The apparatus for providing POS payment of claim 22, wherein the means for receiving customer payment option information includes a means for receiving identification of a customer bank account.

28. The apparatus for providing POS payment of claim 22, wherein the means for receiving customer payment option information includes a means for receiving identification of a customer debit card.

29. The apparatus for providing POS payment of claim 22, wherein the means for receiving customer payment option information includes a means for receiving identification of a customer credit card.

30. The apparatus for providing POS payment of claim 26, wherein the means for transmitting customer account information and merchant account information to permit manipulation of the account balances includes a means for debiting a customer bank account by an amount equal to the cost of the product or service ordered.

31. The apparatus for providing POS payment of claim 26, wherein the means for transmitting customer account information and merchant account information to permit manipulation of the account balances includes a means for charging a customer credit card account by an amount equal to the cost of the product or service ordered.

32. The apparatus for providing POS payment of claim 26, wherein the means for transmitting customer account information and merchant account information to permit manipulation of the account balances includes a means for crediting the merchant account by an amount equal to the cost of the product or service ordered less transactional fees.

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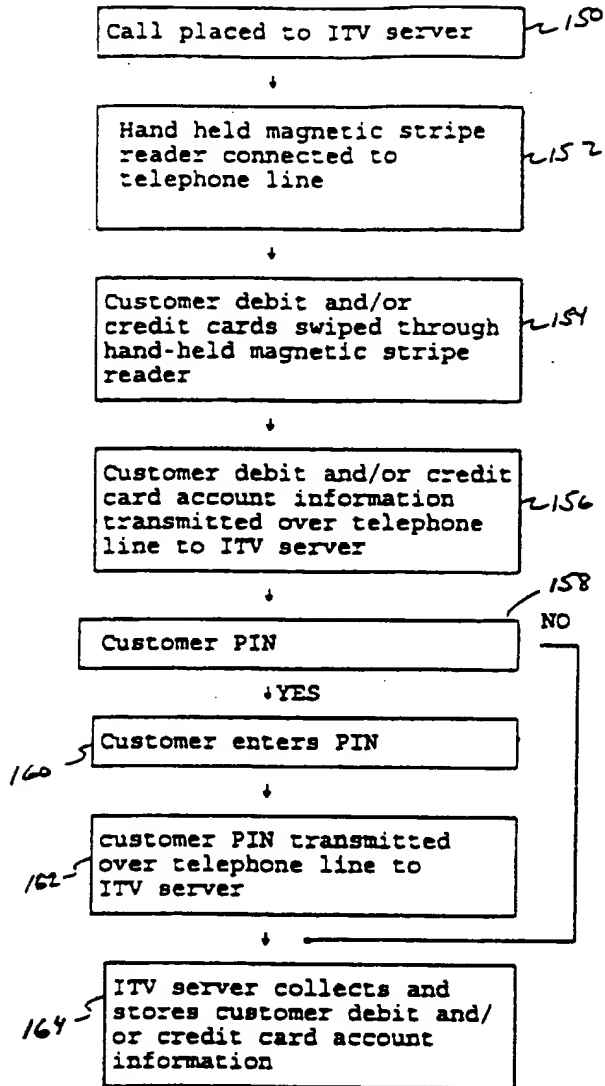


FIG. 3

Kirby, Tades, Gale, Baker

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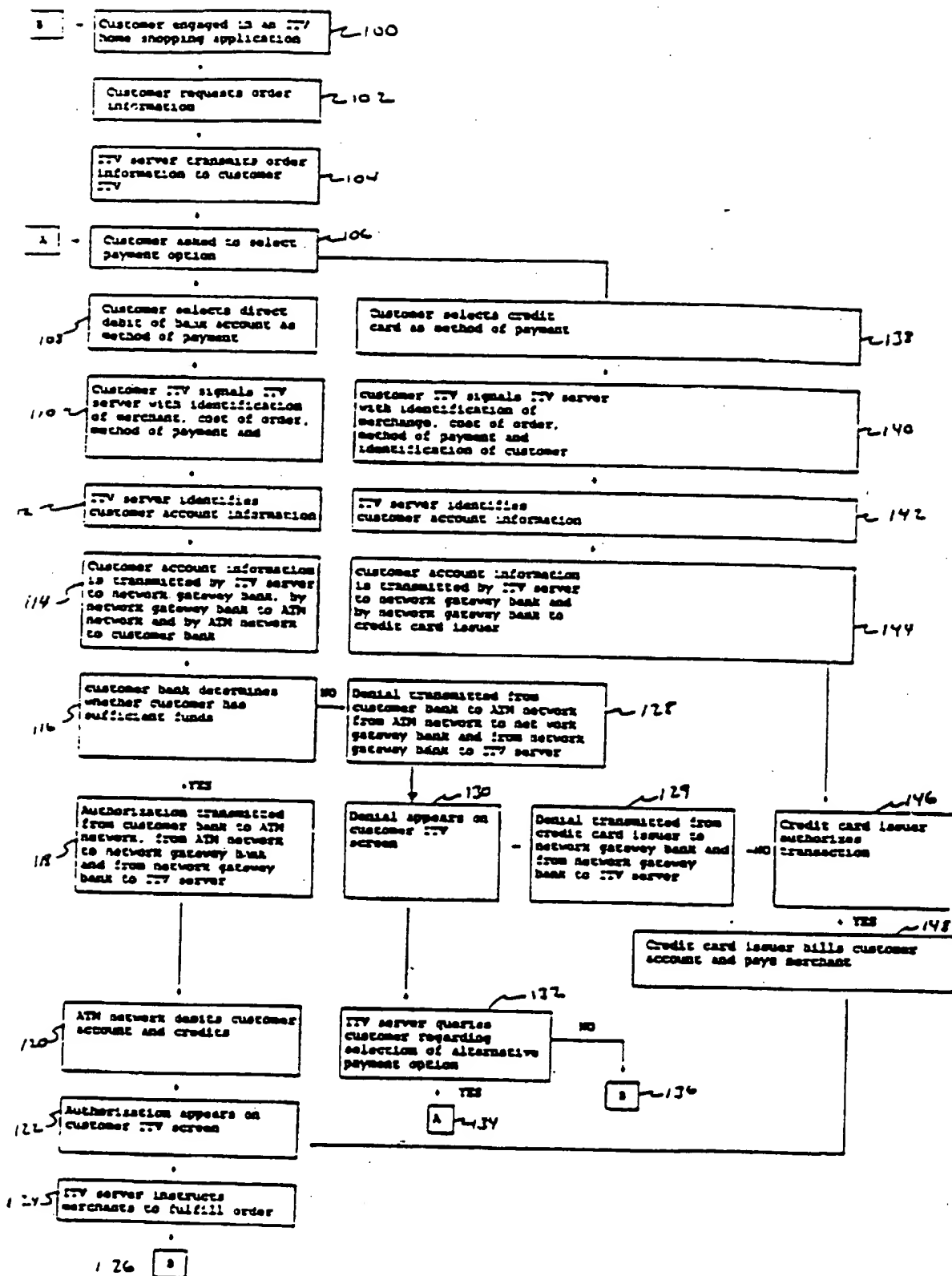


FIG. 2

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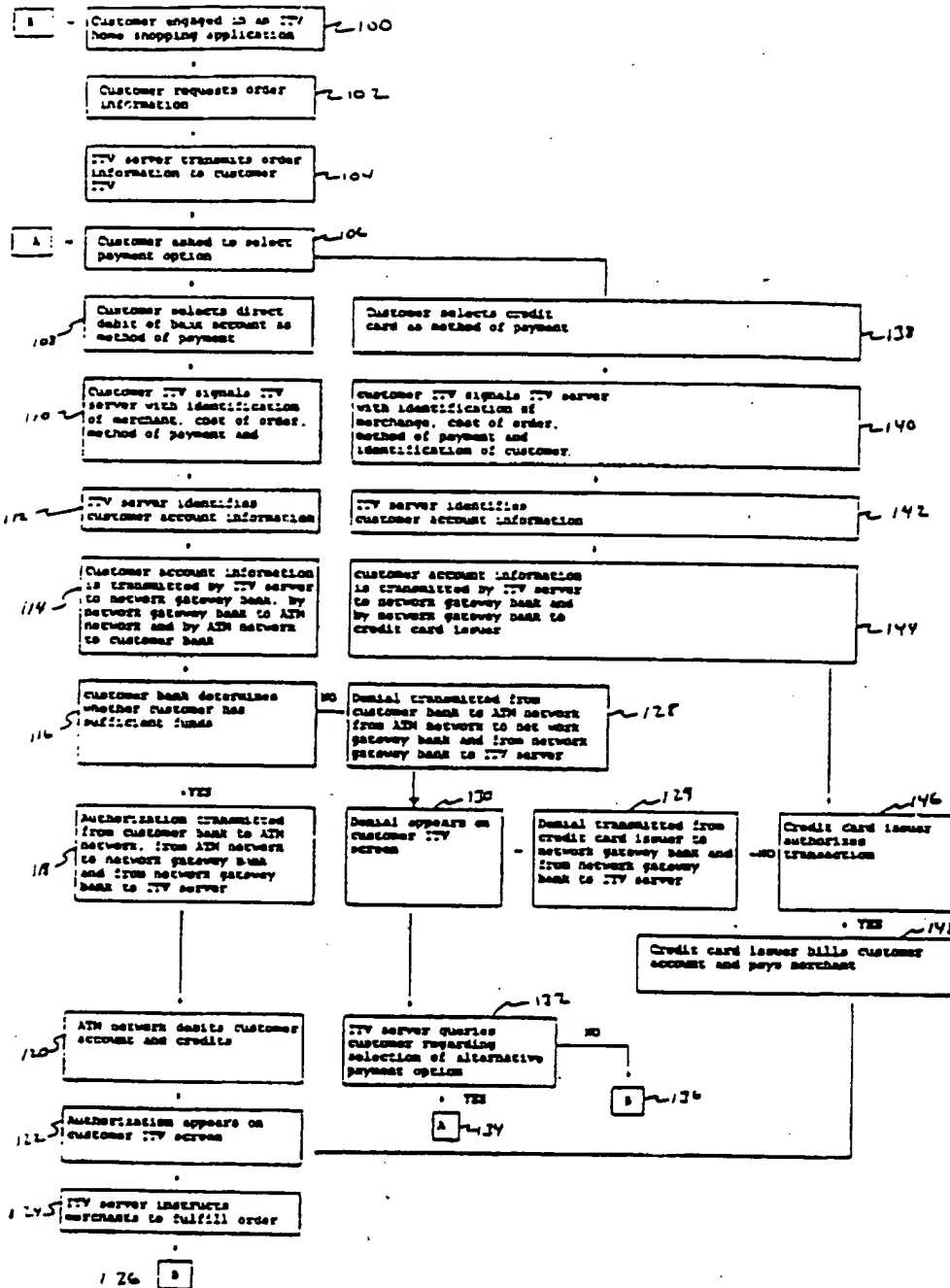


FIG. 2

Kirby, Zadas, Gale, Bakyr

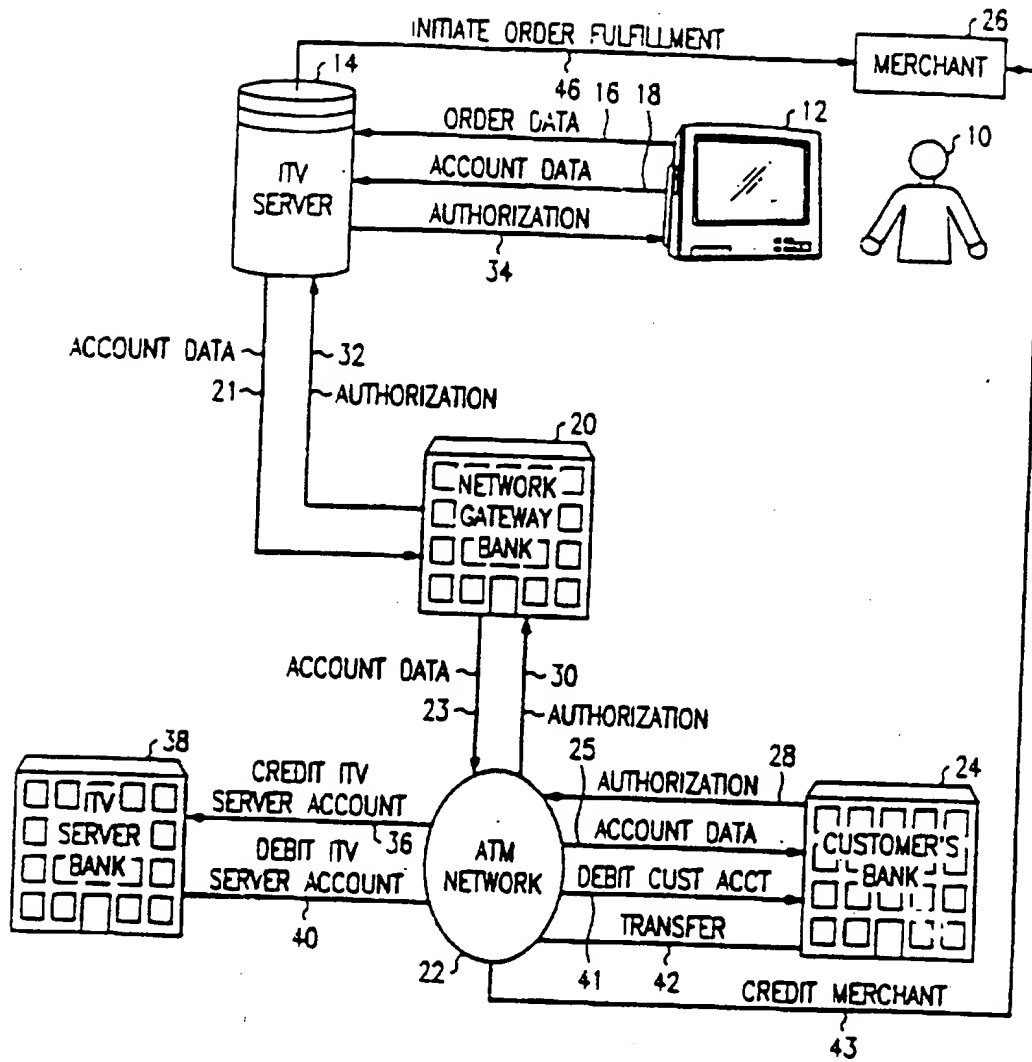


FIG. 1

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